

The Hearing Panel

5 April 2018
10.00 am

Staff Report for Hearing

The recommendation in the staff report represents the opinion of the writer and it is not binding on the Hearing Panel. The report is evidence and has no greater weight than any other evidence that the Panel will hear and consider.

Hearing of Application – APP-20171445

Woldwide One Limited

Compiled by Alexandra King, Senior Consents Officer

- Hearing: The hearing is scheduled to commence at 10.00 am on Thursday, 5 April 2018 in the Council Chambers, Environment Southland, corner of Price Street and North Road, Waikiwi, Invercargill.
- Application: Woldwide One Limited (the applicant) has applied to discharge dairy effluent to land, to abstract groundwater for dairy use, and to use land for expanded dairy farming.
- Notification: The application was publicly notified on 1 December 2017, and six submissions were received.
- Executive Summary: The application is to replace Discharge and Water Permits (AUTH-301663 and AUTH-301664), and for a new Land Use Consent for expanded dairy farming. The proposal is to increase the number of cows milked and wintered in a barn, expand the farm area and effluent discharge area, and increase the volume of water abstracted. No new land is proposed to be converted for dairy use.

The individual consent activities have been bundled to the highest consent test, and under the most restrictive provisions of the relevant plans the application is considered to be a non-complying activity.

The level of adverse effects from the proposed discharge and land use activities on water quality is not well understood. However, based on the information available, the level of adverse effects on water quality as a result of the proposed discharge and land use activities would not be less

than minor, and may be more than minor. The potential effects of the proposed water abstraction are likely to be less than minor.

The level of adverse effects on water quality as a result of the proposed discharge and land use activities is likely to be higher than under the current dairy operation. The key policy direction requires that environmental effects from farming activities be minimised by strongly discouraging further intensification where the effects on water quality cannot be fully mitigated, or in areas where water quality is already degraded to the point of being over-allocated.

In my view the application as a whole does not pass the “gateway test” of Section 104D. Regardless of this, the proposal is not consistent with policy and Council would not achieve freshwater objectives by granting consent. In my opinion this resource consent application should be **declined**.

1. Introduction

1.1 Status and purpose of this report

This report has been prepared under Section 42A of the Resource Management Act 1991 (RMA) to assist in the hearing of the application for resource consent made by Woldwide One Limited. Section 42A allows local authorities to require the preparation of such a report on an application for resource consent and allows the consent authority to consider the report at any hearing.

The purpose of the report is to assist the Hearing Panel in making a decision on the application.

1.2 About the author

My name is Alexandra King. I am a Senior Consents Officer employed by the Southland Regional Council. I have been employed by the Council as a Senior Consents Officer since July 2017, and a Consents Officer since February 2014. Prior to this, I was employed as a resource officer at Fish and Game Council – Wellington Region for one year.

I hold the qualifications of Bachelor of Commerce majoring in marketing management and minoring in psychology, from Otago University and Master of Resource and Environmental Planning, from Massey University.

I am an intermediate member of the New Zealand Planning Institute.

I have been involved with the application since it was lodged and received by Council, and I have visited the site.

I am familiar with the obligations set out in the Code of Conduct for Expert Witnesses contained in the Environment Court’s Practice Note 2011, and I will abide by these.

1.3 Information relied on in preparation of this report

In preparation of this report I have had regard to the following documents:

Document Name	Abbreviation/ reference name	Author	Date
Resource Consent Application	Application	Woldwide One Limited (Applicant) and Nicole Matheson (Consultant)	Received 25 August 2017
Request for Further Information	Further Information Request	Alexandra King	Sent 8 September 2017
Further information provided	Further Information	Woldwide One Limited (Applicant) and Nicole Matheson (Consultant)	Received 16 November 2017
Farm Environment Management Plan	FEMP	Woldwide One Limited (Applicant) and Nicole Matheson (Consultant)	Received 23 November 2017
Notification Recommendation Report	Section 95 report	Alexandra King	Signed 28 November 2017
Pre-hearing Meeting Report	Section 99 report	Aurora Grant	Sent 26 February 2018
Pre-hearing meeting transcript	Pre-hearing transcript	Aurora Grant	Sent 26 February 2018
Revised Dairy Effluent Storage Calculation Summary	Revised DESC	John Scandrett	1 March 2018
Resource Management Act 1991 (RMA)			
National Policy Statement for Freshwater Management 2014 (NPS-FM)			
National Environmental Standard for Sources of Human Drinking Water 2005 (NES-SHDW)			
Regional Policy Statement 2012 (RPS)			
Proposed Southland Water and Land Plan 2016 (SWLP)			
Regional Water Plan 2010 (RWP)			
Regional Effluent Land Application Plan 1998 (RELAP)			
Te Tangi a Tauria (Iwi Management Plan) 2008			

2. The application and procedural matters

2.1 The proposed activities

Applicant:	Woldwide One limited
Application:	To discharge dairy effluent to land, to abstract groundwater for dairy use, and to use land for expanded dairy farming.
Site address or location:	Hundred Line Road East, Heddon Bush
Legal description:	Lot 4 DP 399915, Parts Lot 18 DP 942, Lot 1 DP 10885, and Section 420 Taringatura Survey District
Map Reference:	NZTM2000 1225175 4888760

The applicant proposes to:

- discharge dairy shed and wintering barn effluent to land via high rate travelling irrigator, slurry tanker and umbilical system;
- abstract groundwater for stock drinking water, milk cooling and wash down purposes; and
- use land for expanded dairy farming.

The farm area is proposed to decrease, the effluent discharge area is proposed to increase, the number of cows on farm would increase by 260, and the number of cows wintered on the property in a barn would increase by 240. No cows would be wintered on crop or pasture once the barn capacity has been increased, which is proposed to be by 1 August 2018.

The proposed farming operation will include an additional 54 hectares of land from Woldwide Two Limited added to the northern end of the current milking platform, and an additional 260 cows (800 cows total). Key mitigations include all cows wintered off pasture, and no cropping on the platform. Overseer has been used to model the change, and it is predicted that total losses to water of nitrogen and phosphorus from the platform will increase¹.

The wintering barn will be increased in size to accommodate 620 cows with any additional cows wintered off the farm. Wintering barn effluent will be spread on a cut and carry silage production support block which receives effluent from three wintering barns. With the additional effluent from the larger barn, imported fertiliser use will decrease on the support block.

As the management of the de Wolde’s dairy farm companies is interconnected, the applicant may be able to provide more information regarding farm management in their evidence.

The effluent storage pond is existing and is proposed to be replaced with a larger, synthetically lined pond this dairy season, under a separate application that is currently being processed. The existing storage is significantly smaller than the recommended Massey effluent storage pond calculator 90% storage volume for the proposed operation, which is not good practice.

The application states that the effluent will be discharged at a low rate and low depth via a travelling irrigator, or low depth via a slurry tanker and umbilical system. Although travelling irrigators can achieve low rate application, they generally do not. In order to achieve a consistent application rate, the industry recommends annual maintenance checks carried out by the supplier². An application rate test for the travelling irrigator on this property has not been carried out recently, and was proposed in the response to the further information request to be carried out by the end of March 2018.

The application and Farm Environment Management Plan describes good management practices and mitigations measures intended to reduce adverse effects of the proposal on water quality. These include:

- low depth effluent application via travelling irrigator, slurry tanker and umbilical;
- regular application rate testing of the travelling irrigator;
- “little and often” effluent application;
- GPS proof of placement effluent application when applied using the slurry tanker;
- Effluent Manager to give consideration soil and weather conditions when making effluent discharge decisions, by using Council’s monitoring station information on the website;

¹ Fonterra, NZ Farm Source, (2017). *Nutrient Budgets/Analysis – Woldwide 1 – Soil Survey*. (Application document).

² DairyNZ, (2011). *Guide to Good Irrigation*. Source: <https://www.dairynz.co.nz/media/757905/guide-to-good-irrigation-part-1.pdf>

- all cows wintered off crop and pasture (either in the barn or off-site);
- use of the barn as a stand-off pad during adverse weather conditions;
- regular effluent testing to inform fertiliser decision making.

The following tables summarise matters relevant to this application:

Property Details:-	
Catchment	Middle Creek (which drains to the coast), and Terrace Creek (part of the wider Oreti catchment)
Total farm area (ha)	270 (decreasing from 330 ha)
Replacement consents? Increase in area/cow numbers?	Yes
Physiographic zones	Central Plains and Oxidising
Groundwater zones	Central Plains and Waimatuku

Water Permit Details:-		
Source of water	Bore E45/0071	
Groundwater zone	Waimatuku	
Aquifer type	Lowland	
Rate of take (L/s)	2	
Daily volume (m ³ /day)	91 (increasing from 60)	
Reasonable use? (L/cow/day)	Yes, 113 L/cow/day	
Yearly volume (m ³ /year)	29,172	
	Regional plan	RWP
Discretionary allocation (m ³ /year)	pSWLP 15,660,000	18,800,000
Amount currently allocated (m ³ /year)	1,355,105	1,501,337
% of discretionary allocation	8.7	8

Discharge Permit Details:-	
Cow numbers	800 (increasing from 540)
Stocking rate (cows/ha)	2.9 (increasing from 1.05)
Winter milking proposed?	No (only early or late cows)
Other sources of effluent?	Barn wintering 640 cows (increasing from 400)
Effluent disposal area (ha)	232 (increasing from 177 ha)
Irrigation method	Travelling irrigator, slurry tanker, umbilical
Application method and depth	Travelling irrigator: 10 mm depth Slurry tanker & umbilical: 5 mm depth
Storage available (m ³)	3,397 (application lodged 22 February 2018 to increase capacity to 4,241 m ³)
Massey pond calculator 90% storage capacity requirement (m ³)	4,238
Monitoring proposed	Groundwater monitoring at bore E45/0622

Land Use Consent Details:-			
Increase in cow numbers?	Yes, additional 260 cows milked		
Management plan provided	Yes		
Size of farm area decrease (ha)	60		
Size of effluent disposal area increase (ha)	177 ha		
Nutrient Budget	Current Land Use	Proposed Land Use	Difference
N Loss to water (kg/ha/yr)	17	16	-1
Total N lost (kg N/yr)	3598	4350	752
P Loss to water (kg/ha/yr)	0.7	0.7	0
Total P lost (kg P/yr)	141	176	35

2.2 Regional planning framework

Resource consents for the above activities are required under the Regional Effluent Land Application Plan, the Regional Water Plan, and the proposed Southland Water and Land Plan.

2.2.1 Regional Effluent Land Application Plan (1998)

- The discharge of wintering barn effluent to land and dairy shed effluent by high rate irrigation is a **discretionary** activity under Rule 5.4.6.

*Rule 5.4.6 – The discharge of agricultural effluent onto or into land, other than provided for in Rules 5.4.1-5.4.5 is a **discretionary** activity.*

2.2.2 Regional Water Plan for Southland (2010)

- The discharge of dairy shed effluent to land is a **restricted discretionary** activity under Rule 50(d).

Rule 50 – Discharge of farm dairy effluent to land

...

(d) The discharge of farm dairy effluent to land, that was not being lawfully undertaken as at 17 July 2010 (including an increase in the scale of an activity) in any of the following situations is a restricted discretionary activity:

- (i) low rate irrigation to soil/landscape categories A and B, and D and E as identified on Map 1 of Appendix N or determined by farm-scale soils mapping undertaken by a suitably qualified person; or*
- (ii) low or high rate irrigation by slurry tanker to soil/landscape categories A, B, D and E as identified on Map 1 of Appendix N, or determined by farm-scale soils mapping undertaken by a suitably qualified person, does not exceed 5 mm in depth.*

provided the following conditions are met:

- 1. the discharge is not within 20 metres of any surface water body, artificial watercourse or the coastal marine area;*
- 2. the discharge is not within 200 metres of any place of assembly or dwelling not on the same property, or 20 metres of the boundary of any other property; and*
- 3. the discharge is not within 100 metres of any water abstraction point.*

- The abstraction of 91 m³ per day of groundwater from a lowland aquifer, at a rate of 2 litres per second, is a **discretionary** activity under Rule 23(d)(ii).

Rule 23 - Abstraction and use of groundwater

...

- (d) *Except as provided for in Rules 23(a) and 23(b) and the takes authorised by Section 14(3) of the Act, the abstraction and use of groundwater from any of the following sources is a discretionary activity:*
 - (i) ... (not applicable);
 - (ii) *a lowland aquifer where the total volume of water allocated from the relevant groundwater zone is less than or equal to 15 percent of mean annual land surface recharge;*
 - (iii) ... (not applicable);
 - (iv) ... (not applicable); or
 - (v) ... (not applicable).

2.2.3 Proposed Southland Water and Land Plan (2016)

- The use of land for expanded dairy farming of cows is a **discretionary** activity under Rule 22(a).

Rule 22 – New or expanded dairy farming of cows

- (a) *The use of land for dairy farming of cows that did not exist as at 30 May 2016 or does not comply with Rule 21(a) or 21(b) in the Riverine, Gleyed, Bedrock/Hill Country, Oxidising, Central Plains, or Lignite-Marine Terraces physiographic zones, is a discretionary activity, provided the following condition is met:*
 - (i) *a Management Plan is prepared and implemented in accordance with Appendix N including the mitigations relevant to the farming type being undertaken and relevant physiographic zone, and provided to Environment Southland upon request, or the farming activity and the landholding on which the activity is undertaken is listed on the Environment Southland Register of Independently Audited Self-Management Participants.*

- The discharge of wintering barn and dairy shed effluent to land is a **discretionary** activity under Rule 35(c).

Rule 35 – Discharge of agricultural effluent to land

...

- (c) *The discharge of agricultural effluent or water containing agricultural effluent onto or into land, in circumstances where contaminants may enter water that did not exist as at 1 May 2016 or seeks to increase the number of stock provided for in the Riverine, Gleyed, Bedrock/Hill Country, Oxidising, Central Plains, or Lignite-Marine Terraces physiographic zones that does not meet one or more conditions of Rule 35(a) is a discretionary activity, provided the following conditions are met:*
 - (i) *the discharge is not within 20 metres of any surface waterbody, artificial watercourse or the coastal marine area;*
 - (ii) *the discharge is not within 200 metres of any place of assembly or dwelling not on the same landholding, or 20 metres of the boundary of any other landholding;*
 - (iii) *the discharge is not within 100 metres of any water abstraction point.*

- The abstraction of 91 m³ per day of groundwater where there is a high degree of hydraulic connection to surface water is a **non-complying** activity under Rule 54(g).

Rule 54 - Abstraction and use of groundwater

...

- (g) *The take and use of groundwater that does not comply with Rules 54(b) to 54(f) is a non-complying activity.*

The individual consent activities have been bundled to the highest consent test, and under the most restrictive provisions of the relevant plans the application is considered to be a **non-complying** activity. Although the non-complying activity status relates to the water abstraction rather than the land use activity, the abstraction activity is an essential part of a dairy operation, and therefore it is not considered unreasonable to bundle in this instance.

The original application and the further information provided on 16 November 2017 proposed to discharge effluent within 100 metres of dwellings not on the applicant’s property, and consequently Rule 35(d) of the proposed plan and Rule 5.4.6 of the operative plan would apply, and the activity status would be non-complying. On 23 November 2017 the applicant revised the farm environment management plan (FEMP), and confirmed that effluent would not be discharged within 200 metres of a dwelling not on the applicant’s property.

Under Section 104D the decision maker may grant consent for a non-complying activity if it is satisfied that either the adverse effects will be minor, or the application will not be contrary to the objectives and policies of the relevant proposed and operative regional plans. If the panel grants the application, it may impose conditions under Section 108 of the RMA.

The policies of the relevant plans are used in the following sections to inform and determine the significance of adverse effects associated with the proposed activity, as the direction of the policies help establish whether adverse effects are less than minor, minor or more than minor.

2.3 Further information request

Further information was requested from the applicant on the 8 September 2017, and the requested information was provided by the applicant on 16 November 2017 and 23 November 2017 (these documents are attached).

2.4 Notification and submissions

The application was publically notified on 1 December 2017. Six submissions were received. These are included in full the appendices, and are summarised as follows:

Name of submitter/ Organisation	Support/ Neutral/ Opposed	Wish to be Heard?	Summary of submission
Ministry of Education	Opposed	Yes	<ul style="list-style-type: none"> • Groundwater under the farm flows towards Heddon Bush school, approximately 2 km away, potentially decreasing the quality of this drinking water supply. • Nearby bores shows that Nitrate/Nitrite levels are elevated close to or exceeding the Maximum Accepted Value of Nitrogen (Drinking Water Standard for New Zealand), and show no trend of decreasing. • Cumulative effects including other farms, and time for contaminants to

Name of submitter/ Organisation	Support/ Neutral/ Opposed	Wish to be Heard?	Summary of submission
			<p>migrate through groundwater is not considered in the application.</p> <ul style="list-style-type: none"> • An increase in groundwater nitrate levels will make the school bore water unsafe to drink, which may happen as a result of the proposed activity. There is no reference in the application to additional monitoring that may be required, or additional treatment or sources of water that the school may require.
Niki Gladding	Opposed	Yes	<ul style="list-style-type: none"> • Concerned that the modelled effects on the environment (as stated in the application) are not a good predictor of the actual and potential effects (on soil and ground and surface waters). • Proposed storage capacity of the effluent/slurry pond may be inadequate and that the land may not have sufficient capacity to handle the increased effluent volumes and concentrations. • Climatic changes may not have been factored into the equations for calculating storage volumes and the capacity of the soil/plants to hold and uptake nutrients. • Would like the number of cows on farm to remain at current numbers and practices improved to reduce current losses. • Potential effects of the water abstraction on Bog Burn not adequately considered. • Concerned that proposed use of groundwater not efficient.
Dr Rye Senjen	Opposed	Yes	<ul style="list-style-type: none"> • Greater effects on groundwater quality likely to be very detrimental to and already fragile environment (i.e. three quarters of native freshwater fish are under threat). • Nitrate concentrations in groundwater are elevated in this area which poses a risk to human health (e.g. methaemoglobinaemia risk). • Concerned that risk of groundwater contamination with E.coli has not been adequately addressed. • Concern that the time taken by contaminants in soil and groundwater to emerge in surface water is not adequately considered in the application.
Fish & Game Council – Southland Region	Opposed	Yes	<ul style="list-style-type: none"> • Fish and Game is responsible for the management of sports fish and game birds within the Southland region, • The Waimatuku Stream, associated tributaries, and estuary are sensitive and have significant fish and game values. There are existing issues in surface water quality of Waimatuku Stream, and estuary. Fish & Game national angler use surveys (repeated every seven years) have recorded a significant decline in angler usage of the Waimatuku Stream since commencement in 1994/1995 in a pattern that is consistent with decline of the fishery. • Expresses caution over interpretation of the Overseer modelling as modelling has not been peer reviewed, good effluent management practice assumed, nutrient losses beyond the root zone through deep drainage not considered. Important because of the cracking qualities of the soil. • Inadequate information on: proposed monitoring or auditing to ensure that leaching rates do not increase, wintering plan for 200 cows not being wintered in the barn, site specific effluent management in terms of the soils and Central Plains physiographic zone. • No consideration given to interim catchment limits, nor assessment of alternative land uses that may reduce nutrient leaching. • The application is contrary to: <ul style="list-style-type: none"> - The RMA (1991) (part 2, s.6 and s.7); - The objectives and policies of the NPS-FM (2014) (Policies A2, A3, A4, B5, B7, and C1); - The objectives and policies in the PSWLP (2016) (Objectives 1, 3, 6(a),

Name of submitter/ Organisation	Support/ Neutral/ Opposed	Wish to be Heard?	Summary of submission
			<p>6(b), 7, 8(a), 14 and 18; Policy 5, 13, 15(1), 15(2), 15(3), 16(1)(b) and (2)(c));</p> <ul style="list-style-type: none"> - The objectives and policies of the RPS (2017) (Issues WQUAL .1 - .3, Objectives WQUAL. 1 and .2, Policies WQUAL. 1, .2, .5 and 12 and Method WQUAL .3; Objectives BIO .1 and .2 and Policy .4). <p>The application should be declined, unless conditions including monitoring of adverse effects of the activity on the environment for the duration of the consent, Good management is implemented, and an annual audit of modelled nutrient leaching and current state and trends of surface and groundwater quality at the site and at a catchment level is performed.</p>
Maureen Fraser	Opposed	No	<ul style="list-style-type: none"> • Winter effluent dispersal should be suspended until nitrate levels subside, or should be transported off the property to avoid further contamination of groundwater with nitrates. • Any groundwater take should be suspended until Canterbury has recovered, as algorithms used to calculate sustainable groundwater takes are flawed.
Public Health South, on behalf of Southern District Health Board	Neutral	Yes	<ul style="list-style-type: none"> • Requested application not be granted until completion of catchment limit setting. • Consideration not been given to domestic supplies in the vicinity, nor total nitrogen loading in the catchment. • Cumulative effects at Oreti Beach have not been addressed. Harmful Algal Blooms occur at Oreti, and the risk is already considered high elsewhere around the coast. • Concerned about waterborne disease risk, which may be linked to intensive land use and antibiotic resistance trends. Concerned about the risk of pathogens in ground water, with Southland currently reporting a disproportionately high rate of illness from drinking contaminated groundwater. Notes that cracking characteristics of these soils are similar to the soils in Havelock North, allowing contaminants to leach directly to groundwater. • Supports Farm Management Plan provided with the application, including the use of a hard stand for wintering and wet weather, cut and carry proposals, and not discharging effluent to cracked soil.

2.5 Section 99 pre-hearing meeting

A pre-hearing meeting for the application was held on Tuesday, 13 February 2018, and was chaired by Aurora Grant, Team Leader Consents. Her report, as per Section 99(5) was circulated to attendees with a transcript of the meeting on 26 February 2017, and is attached.

At the pre-hearing meeting it was established that the following were points of agreement between the applicant, submitters and the Council:

- lack of certainty regarding potential effects on the receiving environment;
- nutrient loss modelling using Overseer is not certain, and there are limitations;
- further water quality monitoring is appropriate to understand effects on the receiving environment, and groundwater quality monitoring may be sufficient to indicate potential effects on surface water, given the high level of groundwater and surface water interaction in the area; and
- both upstream and downstream water quality monitoring is necessary.

The points of disagreement between Council and the applicant and submitters were:

- scale and significance of effects of the proposal on water quality, including groundwater and surface water, and drinking water supplies;
- scale of limitations of Overseer modelling for the nutrient loss predictions at this site, and how to manage these;
- management of soil characteristics and vulnerabilities;
- whether further monitoring information should be obtained prior to the proposed intensification;
- effluent storage capacity sufficiency;
- regard to climate change; and
- other contaminants, including medicines and cleaning chemicals.

3. Assessment

3.1 Description of the affected environment

3.1.1 The Existing Environment

Defining the existing environment is important for an assessment of the effects of the proposal on the environment.

Case law helps to define what should be included in the existing environment, and what should not, and is discussed briefly here.

The Environment Court in *QLD v Hawthorn Estate Ltd (2006)* found that the environment includes the future environment as it might be modified by activities permitted under a district plan or by activities for which consents have been approved and which look likely to be implemented³.

In accordance with the direction given by this case, in my assessment the “existing environment” does not include the land use activity for which consent is sought nor the effects arising from this. The “existing environment” does include the below listed activities.

Specific activities that form part of the existing environment for the present application are:

- the use of land for dairy farming that existed as at 30 May 2016 is a permitted activity (subject to conditions) under Rule 21 of the proposed plan;
- the discharge of dairy shed effluent from up to 540 cows, and wintering barn effluent from up to 400 cows is consented to 9 November 2027; and
- the abstraction of up to 60 cubic metres of groundwater per day is consented to 9 November 2027.

3.1.1.1 Water Quantity

The proposed water abstraction would be from the Waimatuku groundwater zone. The groundwater zone is not fully allocated, it is considered to be 8.7 per cent allocated under the proposed plan, and 8 per cent allocated under the operative Regional Water Plan.

³ *Queenstown-Lakes District Council v Hawthorn Estate Ltd* (2006) 12 ELRNZ 299; [2006] NZRMA 424 (CA).

3.1.1.2 Water Quality

There is strong interconnection between groundwater and surface water in this area. Further discussion of this can be found in the technical evidence by Ewen Rodway and Nick Ward.

Surface water

The farm straddles two surface water catchments. Approximately two-thirds of the property drains toward the Middle Creek catchment, and one-third drains toward the Terrace Creek catchment, which is part of the wider Oreti catchment.

Middle Creek flows through the discharge area, and Terrace Creek flows along the eastern farm boundary. Middle Creek joins the Waimatuku Stream approximately 26 kilometres south of the property, which discharges to the coast at Waimatuku Estuary approximately 35 kilometres south of the property. Terrace Creek joins the Oreti River approximately 20 kilometres south east of the property, which discharges to the coast at New River Estuary approximately 39 kilometres further south east.

Both the Waimatuku Estuary and New River Estuary are experiencing stress from nutrient and sediment input. As noted in the technical evidence by Nick Ward, these estuaries are currently experiencing major stress from cumulative sediment and nutrient input and are over-allocated for purposes of maintaining a healthy ecosystem.

Surface water quality on the property was monitored by Council's Compliance Officers for compliance purposes nine times between 11 April 2007 and 11 February 2013, under Discharge Permit AUTH-202559 (prior to the current Discharge Permit AUTH-301663). The results of these sampling events provide a snap shot of water quality at the time of the compliance inspection, and are depicted in the table below. The results show that surface water on the property is degraded, and median nitrogen concentrations in the downstream samples are below the national bottom line of 6.9 mg/L⁴.

Table 1: Compliance surface water quality monitoring sample results (11 April 2007 to 11 February 2013)

Date	Parameter	Electrical Conductivity (µS/cm)	Total Ammoniacal Nitrogen (g/m3)	Nitrogen (g/m3)	Dissolved Reactive Phosphorus (g/m3)	E coli (MPN/100mL)
11/4/2007	Downstream	312	0.015	2.5	0.019	43
	Upstream	311	0.015	2.5	0.024	6
11/10/2007	Downstream	263	0.035	1.5	0.03	2300
	Upstream	239	0.015	1.2	0.018	190
2/04/2008	Downstream	299	0.035	3.3	0.011	10
	Upstream	326	0.025	4.8	0.012	50
14/10/2008	Downstream	344	0.12	9.6	0.0092	2610
	Upstream	342	0.12	9.4	0.01	2760
5/11/2009	Downstream	332	0.73	9.46	0.082	6490
	Upstream	331	0.75	9.62	0.086	2250
7/5/2010	Downstream	381	0.014	17.7	0.024	31
	Upstream	376	0.0188	17.7	0.028	52

⁴ National Policy Statement for Freshwater Management 2014 (amended 2017)

Date	Parameter	Electrical Conductivity ($\mu\text{S/cm}$)	Total Ammoniacal Nitrogen (g/m^3)	Nitrogen (g/m^3)	Dissolved Reactive Phosphorus (g/m^3)	E coli (MPN/100mL)
18/11/2011	Downstream	277	<0.01	8.7	0.013	8160
	Upstream	283	<0.01	8.6	0.014	8160
14/03/2012	Downstream	331	0.01	7.0	0.038	377
	Upstream	333	0.01	7.2	0.035	31
11/02/2013	Downstream	287	<0.01	0.14	0.009	75
	Upstream	308	0.098	3.7	0.017	52

The property is outside of the flood potential zone modelled in Council's mapping system.

Groundwater

Groundwater flow direction is determined to be south. Reasoning for this determination is included in the technical evidence by Ewen Roadway.

Groundwater in the vicinity of the proposed activity is highly degraded with regard to nitrogen and in relation to the Southland Region. However, information on the groundwater quality directly under the property is limited. Information available is summarised below and in the technical evidence by Ewen Rodway.

Groundwater quality sample results are available from two bores on the property. Bore E45/0622 is 3 metres deep and located at the middle of the southern boundary of the main block, and bore E45/0665 is 6.5 metres deep and located at the middle of the northern boundary of the main block. Results from sampling of these two bores are depicted in the graphs below. Sampling of E45/0622 is required under the current Discharge Permit, and sampling of E45/0665 is required under Land Use Consent AUTH-20171278-03 held by Woldwide Two Limited. Nitrate nitrogen concentrations in monitoring samples are depicted in the figures below.

Concentrations in samples from bore E45/0665 are consistently above 7 g/m^3 , which are elevated above natural levels. The maximum allowable value for drinking water is 11.3 g/m^3 . Concentrations in samples from bore E45/0622 are generally around 2 g/m^3 , which is low. Council's Environmental Scientist – Chemistry/Groundwater has noted the variable results obtained from bore E45/622, and has recommended further groundwater monitoring to better understand the nitrate nitrite nitrogen levels at this site.

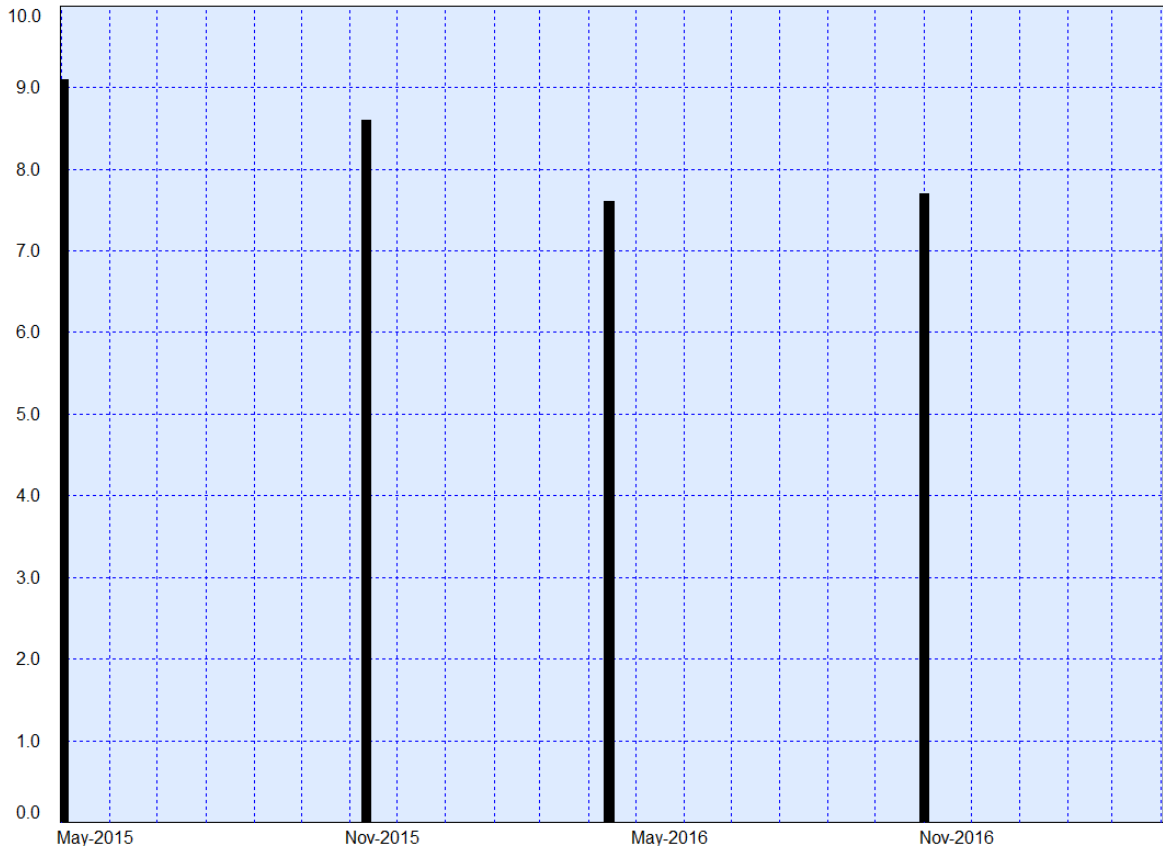


Figure 1: Nitrate nitrogen concentrations (g/m³) in samples taken from bore E45/0665 located at the middle of the northern boundary of the main block, between 1 May 2013 and 1 April 2017

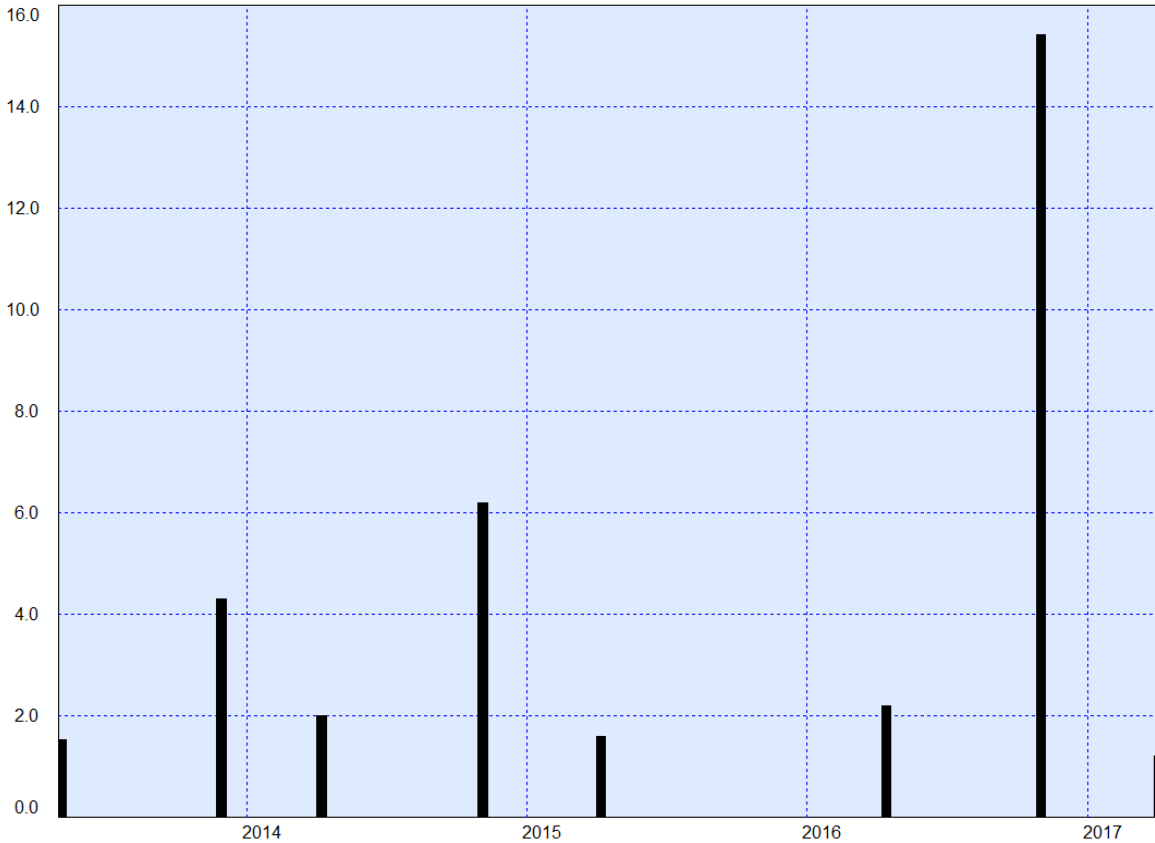


Figure 2: Nitrate nitrogen concentrations (g/m³) in samples taken from bore E45/0622 located at the middle of the southern boundary of the main block, between 1 May 2013 and 1 April 2017

Council holds long-term water quality monitoring data obtained from bore E45/0330 at various depths, approximately 310 metres south of the main farm block. Sampling results for nitrate nitrogen at depths of 3 metres and 6 metres are provided below. These results show that concentrations in samples from bores E45/0330 at 3 metres and 6 metres depth are consistently above 10 g/m³, which is elevated above natural levels and likely caused by land use activities. The standard for drinking water is 11.3 g/m³.

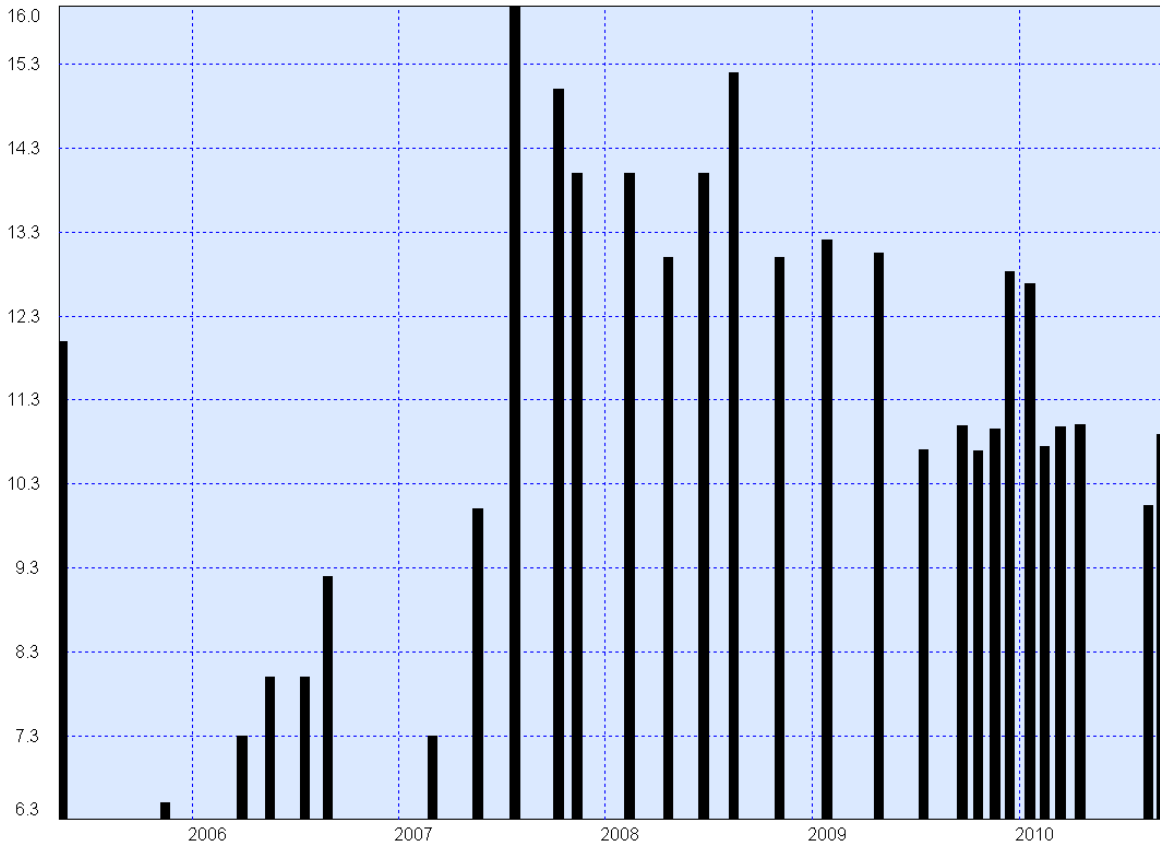


Figure 3: Nitrate nitrogen concentrations (g/m^3) in samples taken from bore E45/0330 at a depth of 3 metres, located 310 metres south of the farm, between 12 May 2005 and 15 September 2010

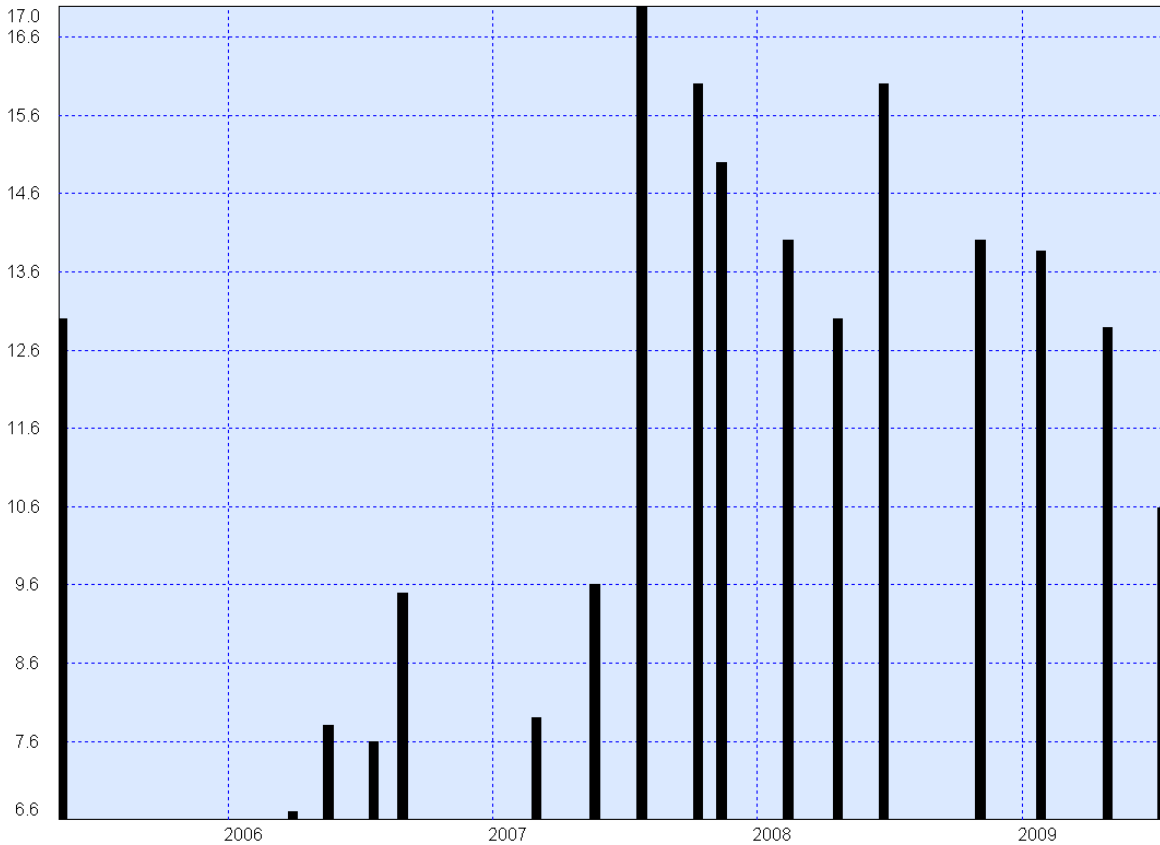


Figure 4: Nitrate nitrogen concentrations (g/m³) in samples taken from bore E45/0330 at a depth of 6 metres, located 310 metres south of the farm, between 12 May 2005 and 17 July 2009

To further understand groundwater nitrate nitrogen concentrations in the vicinity, a table of average concentrations in samples taken from bores within 2.5 kilometres of the farm is provided below. The table shows that average nitrate nitrogen concentrations are often elevated, and often above the New Zealand drinking water standard.

Table 2: Average nitrate nitrogen concentrations measured in sampling from bores within a radius of approximately 2.5km of the subject farm

Site	Depth (m)	Average Nitrate-N (mg/L)
E45/0010	9.5	6.75
E45/0060	11	14.04
E45/0213	5	8.02
E45/0330_3m	3	11.11
E45/0330_6m	6	11.83
E45/0330_9m	9	11.22
E45/0330_12m	12	11.44
E45/0330_15m	15	5.92
E45/0244	Not known	7.75
E45/0436	10	7.89
E45/0622	3	3.83
E45/0085	6.5	0.01
E45/0665	6.5	8.04

Site	Depth (m)	Average Nitrate-N (mg/L)
E45/0187	Not known	5.01
E45/0215	Not known	15.81

Other users

A registered drinking water site at Heddon Bush School is approximately two kilometres south of the farm which is hydrologically downgradient. The school has a UV treatment system, and monitors treated drinking water for E-Coli, but not Nitrogen. The application does not provide an assessment of nitrate nitrogen concentrations at the school's bore.

It is not known how many bores in the vicinity are used for domestic supply. Resource consent is not needed for abstraction for domestic supply, and not all existing bores are recorded in Council's database.

3.1.1.3 Soil

According to Topoclimate soil maps, the farm is located predominantly on Braxton soils, with some Glenelg soils. Soil classifications are not in dispute. Braxton soil, although appearing to be less free draining, have shrink-swell characteristics. This means that during long dry periods the soil may shrink, creating cracks or macropores through which applied nutrients can bypass soil zone denitrification and filtering processes and enter groundwater. Braxton soils are also prone to waterlogging during wet conditions. Glenelg is a stony soil that is free draining and high risk for leaching nutrients to groundwater. Further discussion on soils on the property is in Ewen Rodway's technical evidence.

Soil and physiographic information is summarised in the table below.

Table 3: Topographic soil types and physiographic zones within the effluent discharge area

Soils	Soil Type	Vulnerability Factors		
		Structural Compaction	Nutrient Leaching	Waterlogging
	Braxton (90%)	Moderate	Slight	Severe
	Glenelg (10%)	Slight	Very severe	Nil
FDE soil risk category	Artificial drainage or coarse soil structure (Category A), and Well drained but very stony flat land (Category E)			
Physiographic Zone	Overland Flow	Deep Drainage	Artificial Drainage	Contaminant Accumulation
Central Plains (90%)	-	-	✓	✓
Oxidising (10%)	✓	✓	✓	✓

The effluent disposal area is located predominantly within the Central Plains physiographic zone, with some within the Oxidising physiographic zone. Soils within the Central Plains zone are known to crack extensively during summer as they dry out, and swell when wet in winter and early spring, becoming poorly drained. When neither too dry nor too wet, these soils have some denitrifying ability. The key features of the Oxidising zone are high risk of nitrogen build-up in soils and aquifers, and risk of contaminant loss to water via overland flow or artificial drainage.

The effluent disposal area is predominantly classified as "artificial drainage or coarse soil structure" (Category A), and some is classified as "well drained but very stony flat land" (Category E), under

Policy 42 of the operative Regional Water Plan. There are some tile drains located within the effluent disposal area.

3.1.2 Activities Currently Consented

The assessment of effects under Section 104 of the RMA can be informed by the compliance history. I have outlined the compliance history below.

3.1.2.1 Discharge Permit

Compliance with Discharge Permit AUTH-301663 has been good since commencement on 9 November 2012. No incidents have been recorded, and no compliance action has been taken during the life of this permit. A summary of the compliance history is provided in the table below.

Table 4: Compliance history observation record for Discharge Permit AUTH-301663

Observation Date	Observation Type	Performance Rating	Comments
3-Aug-17	Wintering Pad Inspection	1: Fully compliant	Irrigation has been occurring on and off over the past few weeks. Pond level has 10% freeboard. No issues onsite.
20-Jan-17	Routine Inspection	1: Fully compliant	No issues on site.
12-Aug-16	Wintering Pad Inspection	1: Fully compliant	Approximately 80 cows in the herd home. Irrigator was not located at the time of this inspection.
14-Mar-16	Aerial Inspection	1: Fully compliant	
15-Dec-15	Routine Inspection	1: Fully compliant	Tidy systems.
2-Dec-14	Routine Inspection	1: Fully compliant	ART undertaken and results received 14 July 2014. Average depth of 9.72mm. Travelling irrigator has changed from plucks to briggs 16.
25-Mar-14	Routine Inspection	2: Partially compliant (technical issues)	It is still noted that the results for the application rate test on your irrigator has not yet been received. To avoid penalties for non supply of data please submit this information. Stone trap & sump behind the shed are ok. Main storage pond is nearly empty. Irrigator & application of DSE are good.
14-Aug-13	Wintering Pad Inspection	5: Non-compliant (minor issues)	Application of FDE is marginal. Ponding roughly 10 x 1 m x 2 inches in depth - this appears to be the result of a blown nozzle. These new nozzles have just been replaced, no direct threat to waterways. Pond storage is ok - 0.5 m freeboard. Recommend put nozzle back on before application of FDE. Please supply data for application rate testing.

Observation Date	Observation Type	Performance Rating	Comments
11-Feb-13	Routine Inspection	2: Partially compliant (technical issues)	2 small tractor bucket loads of stone trap scrapings are stockpiled next to the sump area. Please avoid stockpiling this material over unsealed ground and spread out no more than 7mm over paddocks within your discharge area. Irrigator and application ok. Wintering storage is currently being emptied out. 1/2 depth left in main pond.

Prior to the current discharge permit, AUTH-202559 consented the discharge of farm dairy effluent to land between 30 November 2004 and 9 November 2012. Compliance with Discharge Permit AUTH-202559 was mixed, although no compliance action has been taken during the life of this permit. Four incidents relating to odour were recorded between December 2011 and August 2012, however these were not confirmed and no enforcement action was taken in response to these incidents. A summary of the compliance history is provided in the table below.

Table 5: Compliance history observation record for Discharge Permit AUTH-202559

Observation Date	Observation Type	Compliance Rating	Comments
30-Aug-12	Incident	Not Confirmed	Complaint of odour and hasn't seen new consent application to sign it.
21-Aug-12	Incident	Not Confirmed	Extremely strong dairy smell. Application too close to complainant's property.
17-Aug-12	Incident	Not Confirmed	Really bad effluent smell coming from neighbouring property. South West breeze.
21-Dec-11	Incident	Not Confirmed	Dairy Odour. Complainant provided insufficient details. Dealt with suspected party by phone.
18-Nov-11	Routine Inspection	2: Partially compliant (technical issues)	Irrigator set up - good - stone trap good - sump ok - small amount of sludge stockpiled by lead in race.
14-Sep-10	Routine Inspection	5: Non-compliant (minor issues)	Past inspection - irrigator slowed down/blocked nozzle/long drag line/pooling - unauthorised discharges that may enter water - discharging within 20 m of surface waterway - soil conditions very wet - 1 nozzle partially blocked - done to spread effluent better - runoff/pooling behind irrigator - sludge from lane stockpiled south of shed - sludge rule given - leaking around shaft of irrigator - sludge to be spread - irrigator to be moved before discharging again - nozzle to be unblocked (remove ear tag)
5-Nov-09	Routine Inspection	5: Non-compliant (minor issues)	Set your irrigator to fastest speed, keep an eye on blockages, unblock the nozzle and pull the hose up to avoid too much - display your consent - complete and submit blue contact details form (provided) - a large area of pooled effluent is situated around the

Observation Date	Observation Type	Compliance Rating	Comments
			irrigator. Contributing factors are blocked nozzle, too much drag on the hose and the irrigator is operating at a very slow speed
25-Feb-09	Routine Inspection	2: Partially compliant (technical issues)	-Winter shed has pond with plenty of storage. -Irrigator looks to be in good condition.
25-Jan-08	Routine Inspection	1: Fully compliant	* Irrigator on 3 cams, 1 tooth per cam - application rate looks ok. * New wintering barn. * Stone trap to do with a clean but generally good.
18-Jan-07	Routine Inspection	1: Fully compliant	* Irrigator application rate looks ok - waterways clear - hose pulled up. * Effluent sump has plenty of freeboard, some crusting on surface. * Stone trap due for a clean. Generally good. - new wintering shed going up. - 1 side of waterway next to main silage stack not fenced. * Silage stack inspected, sealed underneath - ponded leachate. Stack should be placed more in the middle of the pad – rib walls used to divert leachate to concrete holding tanks which appear to be sealed.
18-Jan-06	Routine Inspection	5: Non-compliant (minor issues)	* Effluent sump has plenty of freeboard. * Application rate too heavy - irrigator needs to be sped up. * Irrigator needs nozzles replaced - will help application rate. * New silage stacks sealed underneath - well away from waterways, excellent. - Old stack near waterway being fed out first & decommissioned.
13-Jul-05	Follow Up	Unsatisfactory	Silage pit leachate found leaching towards waterway. - Pit is located less than 20m from waterway. - Pit working/feeding out end is unsealed.

While the above compliance summary focuses on the application site, the panel should be aware that the applicant has other dairy farms in the area. Across the wider group of six properties 13 compliance issues are recorded in Council’s database. Several of these resulted in enforcement action from Council, ranging through warning letters to Abatement Notices and Infringement Notices.

3.1.2.2 Water Permit

Compliance with Water Permit AUTH-301664 and AUTH-202560 prior has generally been good. No incidents have been recorded, and no compliance action has been taken during the life of this permit. Abstraction data supplied as required by both water permits has generally been on time or close to the due date, and is generally within limits. The abstraction volume data is depicted in the graph below.

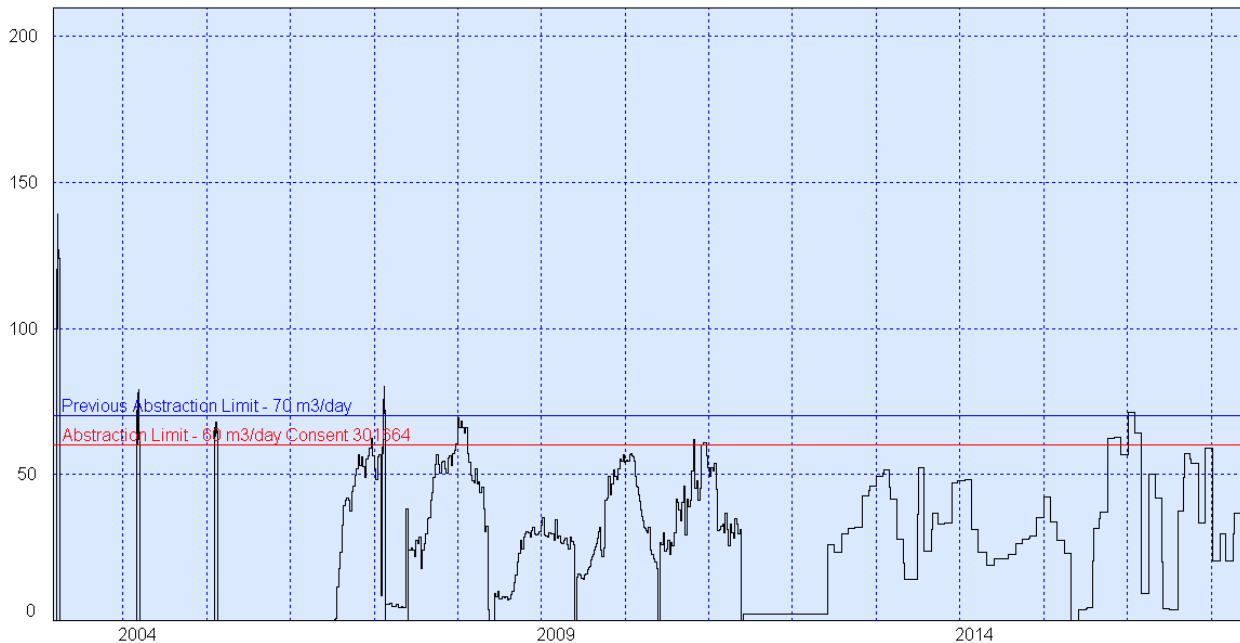


Figure 5: Actual daily abstraction volume in cubic metres from bore E45/0071, between 1 March 2003 to 31 May 2017

3.2 Actual and potential effects

3.2.1 Effects that must be disregarded (Section 104(2))

It is not useful to apply permitted baselines in this case because the baseline only relates to a fraction of the effects of the proposed activities. It is not appropriate to disregard any environmental effects using the permitted baseline concept, and the applicant has not done this. Therefore, the assessment of effects and risks of the proposal has not disregarded any effects on the basis of whether they are permitted by the plan. Further, Policy 39 of the proposed plan also provides guidance on use of the “permitted baseline”:

When considering any application for resource consent for the use of land for a farming activity, Environment Southland will consider all adverse effects of the proposed activity on water quality, whether or not this Plan permits an activity with that effect.

In terms of the land use activity, Rule 21 of the proposed plan permits dairy farming of cows that existed as at 30 May 2016, provided a discharge permit for the discharge effluent is held, and there is no increase in the number of cows beyond that specified in the discharge permit, and other listed conditions. The present application is for an increase in cow numbers, which is not permitted under Rule 21.

In terms of the effluent discharge activity, rules in the proposed plan and the operative Regional Water Plan allow for effluent from up to 20 cows to be discharged to land (among other criteria) as a permitted activity. As the discharge activity is for discharge of effluent collected from more than 20 cows, these criteria can not be met. Any permitted baseline would only relate to a fraction of the effect of the proposed discharge.

In terms of the water abstraction activity, rules in the proposed plan and the operative Regional Water Plan include permitted activity criteria for a specified volume of water. Any permitted baseline would only relate to a fraction of the effect of the proposed water take.

3.2.2 Effects to be considered (Section 104(1)(a))

Consideration of the following effects is required:

- effects on water quality;
- effects on water quantity;
- effects on soil health;
- odour;
- cumulative effects.

3.2.2.1 Water quality

Nutrient budgets provided with the application model the current and proposed operation. Total losses of nitrogen and phosphorus are predicted to increase under the proposed scenario. It is suggested in the application that the modelling should be viewed in the context of both Woldwide One Limited and Woldwide Two Limited farms. As the present application is only for the Woldwide One Limited operation, I do not believe this is appropriate. Further, during processing of the application for the Woldwide Two Limited operation the nutrient budget for the proposed scenario was changed, and consequently the proposed total nitrogen and phosphorus losses increased above that described in the present application⁵.

The applicant has suggested that the modelling demonstrates that potential effects of predicted nutrient losses to water would be similar to or greater than that already occurring, and low for typical dairy farm. However, the nature of the soils on the property, particularly the “shrink/swell” or macropore characteristics, is still being studied and is not fully understood by technical experts or landowners. Therefore in my opinion, Overseer is not able to accurately model the potential nutrient losses from the proposal and inform absolute conclusions as to potential effects on the receiving environments. The nutrient budgets provided are also considered in the evidence by Ewen Rodway.

The applicant has not assessed how increased nutrient loading will affect the receiving environment, or whether increased nitrogen loading in shallow groundwater will affect potable water supplies in the vicinity.

The application does not include an assessment of effects on bores used for domestic supply. Notice of the application was served on all neighbouring property owners within two kilometres of the property’s southern boundary (downstream), and no submissions were received from these parties.

The nearest registered drinking water site is located approximately two kilometres south of the farm at Heddon Bush School (bore E45/0718). As groundwater flow in the vicinity of the property is south to south-south east, it is considered that the school’s bore may be affected. This is also discussed in the technical evidence by Ewen Rodway. The applicant has not provided information to confirm whether or not the bore would be affected by the proposal.

⁵ Fonterra, NZ Farm Source, (2017). *Nutrient Budgets/Analysis – Woldwide 1 – Soil Survey*. (Application document).

As the proposal includes an increase to nutrient losses to water, the proposal is not likely to result in improved ground or surface water quality, at the site or downstream in the catchment. Further discussion is in the technical evidence attached.

3.2.2.2 Water quantity

Water use is proposed by the applicant to be minimised. The shed will have an effluent scraper installed, which is in use in one of the applicant's sheds on another farm. The barn is also scraped rather than washed down.

The application describes a high degree of hydraulic connection between the abstraction bore and the Bog Burn, however as the proposed abstraction rate is low (less than 2 L/s) the effect is considered to be less than minor. Technical evidence by Ewen Rodway confirms that there is a high degree of hydraulic connection between ground and surface water in the subject area.

3.2.2.3 Soil health

The effluent disposal field will be 232 hectares. This figure is more than the area needed to meet the minimum best practice requirement of four hectares per 100 cows, which is calculated to achieve a maximum loading of 150 kg of nitrogen/hectare/year from effluent irrigation. It is also larger than eight hectares per 100 cows as recommended in the Best Practice Guidelines Booklet⁶, which is designed to avoid excess potassium build up in soil.

Soils on the property are predominantly Braxton, with some Glenelg. The main risk factors for the discharge of effluent on the property are contaminants entering groundwater and surface water through artificial drainage, waterlogging, or deep drainage. Mitigation measures that address this include use of the wintering barn over winter and autumn and spring as necessary, only applying effluent to land when soil conditions are suitable and being able to defer the discharge of effluent to land through storage.

Provided the effluent is applied at the appropriate rate and depth (as specified in the consents conditions), soil health and available nutrients should be maintained and enhanced.

3.2.2.4 Odour

As long as the effluent is stored in accordance with good management practice, and is applied in accordance with the buffers from sensitive features (including dwellings and property boundaries) specified in the proposed and operative regional plans, then there should be little risk of adverse effects from odour and spray drift.

To mitigate potential odour during the discharge activity, the applicant uses a slurry tanker equipped with trailing shoe to reduce odour effects during effluent disposal.

3.2.2.5 Cumulative effects

The RMA defines a cumulative effect as an effect that arises over time or in combination with other effects. The risk of cumulative effects of this proposal include nitrate nitrite concentrations in groundwater in the vicinity of the farm, and contaminant loading in the Waimatuku and New River Estuaries downstream of the farm.

⁶ Farm Dairy Effluent, Best Practice Guidelines (2007), Environment Southland

There is a degree of uncertainty about the cumulative effects of the proposed discharge and land use activities on this sensitive receiving environment. Technical evidence by Ewen Rodway concluded that the oxidising nature of groundwater in this area means that there is potential for cumulative effects of nitrogen contamination to occur as water moves down gradient within the aquifer. As noted in the technical evidence by Nick Ward, both the Waimatuku and New River estuaries are currently experiencing major stress from cumulative sediment and nutrient input and are over-allocated for purposes of maintaining a healthy ecosystem.

3.2.2.6 Effects Conclusion

I do not think that the applicant has demonstrated that the adverse effects of the proposed land use and discharge activities on the receiving environment would be less than minor or minor, and therefore the proposal does not pass the “gateway test” of Section 104D(1)(a).

As described in the technical evidence by Ewen Rodway, groundwater is likely to be highly sensitive and at high risk to further nitrogen contamination. Any increased nitrogen inputs at the site are likely to have a degrading effect on an already degraded and highly sensitive environment. As groundwater and surface water are interconnected, any further degradation of groundwater is likely to result in further degradation of sensitive surface water receiving environments, particularly the Waimatuku Stream.

There is uncertainty as to the effects of the proposed land use and discharge activities, and it is unlikely that these activities would enhance water quality. This is contrary to key policies in the operative and proposed plans.

The proposed groundwater abstraction is unlikely to result in adverse effects on the environment. The groundwater zone is not fully allocated, and this abstraction is not likely to result in full allocation of the resource.

3.3 Section 104 of the Resource Management Act 1991

Section 104 of the Act sets out the matters to be considered when assessing an application for a resource consent. Section 104(1) of the Resource Management Act, 1991, states:

- (1) *When considering an application for a resource consent and any submission received, the consent authority must, subject to Part 2, have regard to:*
 - (a) *any actual and potential effects on the environment of allowing the activity; and*
 - (b) *any relevant provisions of –*
 - (i) *a national environmental standard;*
 - (ii) *other regulations;*
 - (iii) *a national policy statement;*
 - (v) *a regional or proposed regional policy statement;*
 - (vi) *a plan or proposed plan; and*
 - (c) *any other matter the consent authority considers relevant and reasonably necessary to determine the application.*

Section 104 of the Resource Management Act requires consideration of the effects of the application and relevant policy and plan provisions, subject to Part 2 of the Resource Management Act. Recent case law indicates that the provisions of the regional plans (and the other instruments listed in s104) have been

developed under, and give specific effect to, Part 2⁷⁸. Therefore the direction provided by the plan provisions should take precedence when deciding a resource consent, although the provisions of Part 2 will provide guidance where the plan provisions are unclear⁹.

The following sections adopt this approach. The proposed Southland Water and Land Plan is the key planning document, and gives effect to high order document, including the National Policy Statement for Freshwater Management and the Resource Management Act. Also considered in the below sections is Te Tangi a Tauria, the iwi management plan for Murihiku, and the National Environmental Standard for Sources of Human Drinking Water, as these documents provide useful guidance.

3.4 Relevant provisions of the relevant regional plan objectives, policies and rules (Section 104(1)(b)(v))

This application has been assessed under three Regional Plans – the **Regional Effluent Land Application Plan**, the **Regional Water Plan**, and the **proposed Southland Water and Land Plan**.

The proposed Southland Water and Land Plan was notified by the Consent Authority on 3 June 2016. When making a determination on the application under Section 104(1)(b) regard must, Subject to Part 2 of the Act, be had to the provisions of any proposed plan.

The relevant provisions of all three plans are detailed below and are considered in turn.

3.4.1 Proposed Southland Water and Land Plan (2016)

The proposed **Southland Water and Land Plan** was notified on 3 June 2016. The objectives and policies of the proposed plan that are relevant to this application have been grouped according to topic:

Ngai Tahu Policies

- Objective 3* *The mauri (inherent health) of waterbodies provide for te hauora o te tangata (health of the people), te hauora o te taiao (health of the environment) and te hauora o te wai (health of the waterbody).*

- Objective 4* *Tāngata whenua values and interests are identified and reflected in the management of freshwater and associated ecosystems.*

- Policy 1* *Enable Papatipua Runanga to effectively undertake their Kaitiaki responsibilities in freshwater and land management through the methods listed in the Policy*

- Policy 2* *Take into account Iwi Management Plans*

- Policy 3* *To manage activities that adversely affect Taonga species identified in Appendix M*

⁷ *Saddle View Estate Ltd v Dunedin CC* [2014] NZEnvC 243, [2015] NZRMA 1, (paragraphs 92-93).

⁸ *Aro Valley Community Council Inc v Wellington CC* [2015] NZHC 532, (paragraph 24).

⁹ *R J Davidson Family Trust v Marlborough District Council*, [2017] NZHC 52, (paragraph 76).

Comment

The proposal would not achieve Objective 3.

Te Tangi a Taurira, the iwi management plan, has been taken into account in assessing the application. Although not involved in this application, Te Ao Marama Inc has provided input to the development of standard conditions for similar activities.

Physiographic Zone

Policy 5

In the Central Plains physiographic zone, avoid, remedy, or mitigate adverse effects on water quality from contaminants, by:

1. *requiring implementation of good management practices to manage adverse effects on water quality from contaminants transported via artificial drainage and deep drainage;*
2. *having particular regard to adverse effects on water quality from contaminants transported via artificial drainage and deep drainage when assessing resource consent applications and preparing or considering management plans.*

Policy 10

In the Oxidising physiographic zone, avoid, remedy, or mitigate adverse effects on water quality from contaminants, by:

1. *requiring implementation of good management practices to manage adverse effects on water quality from contaminants transported via deep drainage, and overland flow and artificial drainage where relevant;*
2. *having particular regard to adverse effects on water quality from contaminants transported via deep drainage, and overland flow and artificial drainage where relevant when assessing resource consent applications and preparing or considering management plans.*

Comment

The physiographic zones relate to the classification of land and risks to water quality based on factors including soil types, landscape classification, climate, topography and water chemistry. These have been developed to better understand Southland's water and why it is better quality in some areas than others. In assessing the actual and potential effects of the discharge and land use, it is not clear that the applicant has adequately addressed the key risk factors listed in the above policies (artificial drainage, overland flow and deep drainage). Therefore the applications is not consistent with, and may be contrary to these provisions.

Water Quality

Objective 6

There is no reduction in the quality of freshwater, and water in estuaries and coastal lagoons, by improving the quality of water in waterbodies, estuaries and coastal lagoons, that have been degraded by human activities.

Objective 7

Any further over-allocation of freshwater (water quality and quantity) is avoided and existing over-allocation is phased out

Objective 8

The quality of water in aquifers that have been degraded by land use and discharge activities is improved.

Policy A4 of the National Policy Statement for Freshwater Management 2014

- Policy 13* *Manage land use activities and discharges to land and water so that water quality and the health of humans, domestic animals and aquatic life, is protected.*
- Policy 14* *Prefer discharges to land, rather than direct discharges to water.*
- Policy 15* *Maintain and improve water quality by the methods listed in the full policy.*
- Policy 16* 1. *Minimising the environmental effects from farming activities by:*
- (a) strongly discouraging the establishment of new dairy farming or new intensive winter grazing activities in close proximity to sensitive waterbodies identified in Appendix Q;*
- (b) strongly discouraging applications to establish new, or further intensify existing dairy farming of cows or intensive winter grazing activities where the effects on the quality of water, including cumulatively, of groundwater, waterbodies, coastal lakes, lagoons, tidal estuaries, salt marshes and coastal wetlands cannot be avoided or fully mitigated or in areas where water quality is already degraded to the point of being over-allocated.*
2. *Requiring all farming activities, including existing activities, to:*
- (a) either implement a Management Plan, as set out in Appendix N, or be listed on the Environment Southland Register of Independently Audited Self-Management Participants;*
- (b) actively manage sediment run-off risk from farming and hill country development by requiring setbacks from waterbodies, riparian planting, limits on areas or duration of exposed soils and the prevention of stock entering surface waterbodies;*
- (c) manage collected and diffuse run-off and leaching of nutrients, microbial contaminants and sediment through the identification and management of higher risk physiographic zones on a regional scale, and critical source areas within individual properties.*

Comment

The proposal is not likely to achieve Objectives 6, 7, or 8, and is not consistent with Policy A4.

The proposal is contrary to Policies 13 and 15(2)

The key policy with regard to water quality is Policy 16. Modelling provided with the application shows that the proposal is not likely to be fully mitigated as per 1.(b). Good practice methods and mitigation measures (as discussed in Section 3.2) proposed in the application may not be sufficient to fully mitigate adverse effects on water quality in the receiving environment. The groundwater zone could be considered over allocated in terms of water quality. Although catchment limits have not yet been set, the New Zealand Drinking Water Standard maximum allowable value (MAV) could be considered a limit. The proposal is not consistent with this policy.

Effluent Management

Policy 17

1. *Avoid adverse effects on water quality, and avoid as far as possible other adverse environmental effects from the use of effluent management systems.*
2. *Manage agricultural effluent systems and discharges from them by:*
 - (a) *designing, constructing and locating systems appropriately;*
 - (b) *maintaining and operating agricultural effluent systems in accordance with best practice guidelines;*
 - (c) *avoiding any surface run-off/overland flow, ponding or contamination of water resulting from the application of agricultural effluent to pasture;*
 - (d) *avoiding the discharge of raw sewage and untreated agricultural effluent to water.*

Comment

Effluent storage for deferred application during adverse conditions is in place on farm, although the storage capacity is not currently sufficiently sized and has not been assessed by a Certified Practising Engineer as structurally sound. It is proposed that the pond be enlarged and a synthetic liner installed, and consent for this activity has been applied for separately.

This is largely consistent with part 2.(a) and (d) of the policy, and contrary with part 1, part 2(b), and part 2(c). Part 1 of the policy is difficult to achieve given the unique characteristics of the physiographic zone, and given the information available, is not likely to be achieved if the operation is run as proposed. Effluent irrigation is proposed to be by high rate, therefore best practise effluent management is not achieved, which is contrary to part 2(b). Cracked soils or macropores can provide a conduit to transport contaminants directly to groundwater, which I consider to be contrary to part 2(c).

Water Quantity

<i>Objective 9</i>	<i>The quantity of water in surface waterbodies is managed and listed values are maintained.</i>
<i>Objective 11</i>	<i>Water is allocated and used efficiently.</i>
<i>Objective 12</i>	<i>Groundwater levels, and minimum surface water flows where these are derived from groundwater, are maintained.</i>
<i>Policy B7</i>	<i>Policy B7 of the NPS for Freshwater Management 2014</i>
<i>Policy 20</i>	<i>Management of water resources</i>
<i>Policy 21</i>	<i>Allocation of water</i>
<i>Policy 22</i>	<i>Management of the effects of groundwater and surface water</i>

Comment

The proposed abstraction would not result in allocation limits being met or exceeded, the proposed rate of abstraction is low and therefore unlikely to affect other users and surface water, the proposed volume is reasonable for the proposed use, and the abstraction volume will be metered. The water permit application is consistent with these objectives and policies.

Freshwater Management Unit Policies

Policy 44 Implementing Te Mana o te Wai

Policy 45 Priority of FMU policies and rules

Policy 46 Identified FMUs

Comment

The above provisions relate to the identification of Freshwater Management Units and the subsequent development of policies and rules. As part of this process it is likely that water quality and quantity limits will be set for each unit by 2025. This is part of the process of addressing water quality and the direction provided by the NPS for Freshwater Management 2014. The farm is located in the Aparima, Waimatuku and Oreti freshwater management units.

Consideration of resource consent applications

Objective 2 Water and land is recognised as an enabler of the economic, social and cultural wellbeing of the region.

Objective 13 Enable the use and development of land and soils, provided:

- (a) the quantity, quality and structure of soil resources are not irreversibly degraded through land use activities and discharges to land;*
- (b) the discharge of contaminants to land or water that have significant or cumulative effects on human health are avoided; and*
- (c) adverse effects on ecosystems (including diversity and integrity of habitats), amenity values, cultural values and historic heritage values are avoided, remedied or mitigated to ensure these values are maintained or enhanced.*

Objective 14 The range and diversity of indigenous ecosystem types and habitats within dryland environments, rivers, estuaries, wetlands and lakes, including their margins, and their life-supporting capacity are maintained or enhanced.

Objective 18 All activities operate at “good (environmental) management practice” or better to optimise efficient resource use and protect the region’s land, soils, and water from quality and quantity degradation.

Policy 39 When considering any application for resource consent for the use of land for a farming activity, Environment Southland will consider all adverse effects of the proposed activity on water quality, whether or not this Plan permits an activity with that effect.

Policy 39A To improve integrated management of freshwater and the use and development of land in whole catchments, including the interactions between freshwater, land and associated ecosystems (including estuaries).

Policy 40 Determining the term of resource consents

Policy 41 Matching monitoring to risk

Policy 42 Consideration of water permit applications

Comment

There are direct interactions between freshwater, land and associated ecosystems, which must be considered as part of this application.

The proposal does not achieve Objectives 13, 14 and 18. The proposed land use and discharge activity have not been demonstrated to be consistent with Objective 13(b) and (c), and by discharging effluent at a high rate via a travelling irrigator, the proposal is contrary to Objective 18.

In terms of Policy 40, an appropriate term for the resource consents sought has not yet been determined.

In terms of Policy 41, there is likely to be a significant risk of adverse effects on the environment under the proposal. The applicant proposed monitoring of groundwater only at the pre-hearing meeting. Although this would capture nitrogen concentrations in freshwater generally (minus nitrogen entering surface water from run-off), groundwater monitoring is not suitable for monitoring the effects of other contaminants relevant to surface water quality such as E.coli, phosphorus and ecological indicators.

The term sought for the water permit is the same as that sought for the other permits applied for, which is consistent with Policy 42.

3.4.2 Regional Effluent Land Application Plan (1998)

The objectives and policies of the operative **Regional Effluent Land Application Plan** that are relevant to the application have been considered below:

Objective 4.1.1 To ensure that the life supporting capacity of the soil ecosystem is safeguarded from the adverse effects of discharges of effluent and sludge onto or into land.

Objective 4.1.2 To ensure that water quality and the life supporting capacity of the water ecosystem is safeguarded from the adverse effects of discharges of effluent and sludge onto or into land which may enter water.

Objective 4.1.3 To ensure that effluent and sludge discharges onto or into land do not adversely affect human and animal health.

Objective 4.1.4 To ensure that amenity values are not adversely affected by discharges of effluent and sludge onto or into land.

Objective 4.1.5 To recognise and provide for the relationship of takata whenua with ancestral sites, wahi tapu and other taoka.

Policy 4.2.1 Protect the sustainability of the soil ecosystem from adverse effects of effluent and sludge discharges onto or into land.

- Policy 4.2.2 Utilise land treatment of effluent and sludge where this can be undertaken in a sustainable manner and without significant adverse effects.*
- Policy 4.2.3 Avoid where practicable, remedy or mitigate adverse effects on water quality, water ecosystems and water potability from effluent and sludge discharges onto or into land.*
- Policy 4.2.4 Adopt a precautionary approach to the discharge of effluent and sludge onto or into land where there are uncertainties regarding adverse effects.*
- Policy 4.2.6 Avoid where practicable, remedy or mitigate any adverse effects to human and animal health arising from discharges of effluent and sludge onto or into land.*
- Policy 4.2.8 Recognise and provide for takata whenua concerns related to the discharge of effluent and sludge onto or into land.*
- Policy 4.2.9 Avoid where practicable, remedy or mitigate any adverse effects on amenity values from discharges of effluent and sludge systems onto or into land.*
- Policy 4.2.10 Monitor, as appropriate, discharges of effluent and sludge onto or into land and, where practicable, the effects.*

Comment

Effluent from the wintering barn is proposed to be discharged to land which is not provided for under the operative Regional Water Plan, and the operative Regional Effluent Land Application Plan applies.

The application is largely consistent with Objectives 4.1.1, 4.1.4 and 4.1.5, but inconsistent with Objectives 4.1.2 and 4.1.3. It is unclear from the application whether the proposal will ensure the discharge activity will result in adverse effects on the water ecosystem, or human and animal health.

The proposal is not consistent with Policies 4.2.3 and 4.2.6, and is contrary to Policy 4.2.4.

The discharge is to land, soil health is likely to be maintained, critical source areas are known and mapped, and the discharge is proposed to be monitored, which is consistent with some of these policies.

Te Tangi a Taurira, the iwi management plan, has been taken into account in assessing the application. Although not involved in this application, Te Ao Marama Inc has provided input to the development of standard conditions for similar activities.

3.4.3 Regional Water Plan (2010)

The objectives and policies of the operative **Regional Water Plan** that are relevant to this application have been grouped according to topic:

Water Quality

- Objective 2 To manage water quality so that there is no reduction in the quality of the water in any surface water body, beyond the zone of reasonable mixing for*

discharges, below that of the date this Plan became operative (January 2010).

- Objective 3 To maintain and enhance the quality of surface water bodies so that values are protected, or measurable progress is achieved towards making it suitable for these.*
- Objective 4 To manage the discharge of contaminants and encourage best environmental practice to improve the water quality in surface water bodies to achieve a minimum of 10 percent improvement in levels of the following water quality parameters over 10 years from the date this Plan became operative (January 2010):*
- (a) microbiological contaminants*
 - (b) nitrate*
 - (c) phosphorus*
 - (d) clarity*
- Policy 4 Surface water bodies outside of Natural State Waters.*
- Policy 7 Prefer discharges to land over discharges to water.*
- Policy 13 Avoid the point source discharge of raw sewage, foul water and untreated agricultural effluent to water.*
- Policy 25 To avoid, remedy or mitigate the adverse effects arising from point source and non-point source discharges so that there is no deterioration in groundwater quality after reasonable mixing.*

Comment

The proposal is not likely to achieve Objectives 2, 3, or 4. Given the information available, it is considered that the proposal is contrary to Objective 3.

The effluent discharge activity is to land, and point source discharges are not proposed. It is unclear whether there will be a deterioration in groundwater quality after reasonable mixing, as this would require further assessment by the applicant. Given the high groundwater nitrate concentrations measured in the vicinity and at the site, which is likely influenced by intensive agricultural land use, there is potential for negative adverse effects as a result of the proposed discharge and land use activities, which is not consistent with Policy 25.

Water Quantity

- Objective 5 Sufficient water availability*
- Objective 7 Efficient water use*
- Policy 14 Manage the taking, use, damming or diversion of surface water so as to avoid where practicable, remedy or mitigate significant adverse effects.*
- Policy 21 Reasonable use of water*
- Policy 22 Water measuring devices*

<i>Policy 23</i>	<i>Review conditions on all new water permits</i>
<i>Policy 28</i>	<i>To manage groundwater abstraction to avoid significant adverse effects</i>
<i>Policy 30</i>	<i>Staged management approach to allocating groundwater and recognise and assess the different characteristics of aquifer types</i>
<i>Policy 31</i>	<i>Limit the cumulative interference effect of any new groundwater abstraction</i>

Comment

The proposed abstraction would not result in allocation limits being met or exceeded, the proposed rate of abstraction is low and therefore unlikely to affect other users and surface water, the proposed volume is reasonable for the proposed use, and the abstraction volume will be metered. The water permit application is consistent with these policies.

Land and Soils

<i>Policy 31A</i>	<i>Match the level of management that is required for discharges of contaminants onto or into land to the level of environmental risk</i>
<i>Policy 31C</i>	<i>Manage discharges of contaminants onto or into land to avoid, remedy or mitigate the listed adverse effects</i>
<i>Policy 31D</i>	<i>Encourage the beneficial reuse of materials and promote discharges of materials onto or into land.</i>

Comment

The application is generally consistent with these policies. The applicant has proposed most good management practices and some mitigation measures to reduce adverse effects on fresh water and soil health from the effluent discharge and land use activities. There other good practise methods and mitigation measures which have not been considered (i.e. precision farming software systems, low rate effluent irrigation).

Term and Granting of Consent

<i>Policy 14A</i>	<i>To determine the term of a water permit consideration will be given, but not limited, to a range of factors, listed in the policy</i>
<i>Policy 14B</i>	<i>To determine the term of a water permit for a previously authorised activity consideration will be given, but not limited, to a range of factors, listed in the policy</i>
<i>Policy 43</i>	<i>For FDE consents match duration, inspection and audit requirements, to the level of risk</i>

Comment

Monitoring conditions and consent term have not been considered in full. The applicant signalled at the pre-hearing a desire to engage with submitters regarding consent conditions prior to the hearing.

A consent term to 9 November 2027 is sought, which is the date the current Discharge and Water Permits expire.

Agricultural Effluent

Policy 41 *Avoid adverse effects on water quality, and avoid as far as possible other adverse environmental effects, associated with the location, design, construction, operation and maintenance of agricultural effluent ponds*

Policy 42 *Avoid adverse effects on water quality and other adverse effects associated with the application of FDE to land by matching FDE management to receiving environment risk*

Comment

Effluent storage for deferred discharge during adverse conditions is in place on farm, although the storage capacity is not currently sufficiently sized, is not ideally sited, and has not been assessed by a Certified Practising Engineer as structurally sound. It is proposed that the pond be enlarged and a synthetic liner installed, and consent for this activity has been applied for separately. This is largely consistent with Policy 41.

Risks to the receiving environment are not known with absolute certainty, therefore it is difficult to achieve consistency with Policy 42.

3.4.4 Conclusion

The key planning document is the proposed Southland Water and Land Plan, as more weight is being placed on this plan than the operative Regional Water Plan and Regional Effluent Land Application Plan. The proposed Southland Water and Land Plan was notified on June 2016, and gives effect to higher order documents (including the National Policy Statement for Freshwater Management 2014).

A policy assessment has been included in the application. I have reviewed this assessment and also examined the relevant planning documents. The key policies of the proposed Southland Water and Land Plan are for the integrated management of land and water, to minimise the environmental effects from farming activities, and for no reduction in the quality of freshwater.

Given the information available (discussed in the assessment of effects section above, and in the technical evidence by Ewen Rodway and Nick Ward), it is considered that the proposed discharge and land use would be contrary to:

- Objectives 3, 6, 7, 8(a), 13(c), 14, and 18 of the proposed plan;
- Policies 5, 10, 13, 15(2), 16(1)(b), 17(1), 17(2)(b) and 17(2)(c) of the proposed plan;
- Policy 4.2.4 of the operative Regional Effluent Land Application Plan; and
- Objective 3 of the operative Regional Water Plan.

Use land for additional dairy farming

The use of land for dairy farming is considered under the proposed plan, and the key policy under the proposed plan is Policy 16. The proposal is not consistent with this policy.

Effluent discharge

The key policy in relation to the effluent discharge activity in the proposed plan is Policy 17. The application is largely consistent with part 2(a), (c), and (d) of Policy 17. As the effluent irrigation is proposed to be by high rate, best practice effluent management is not achieved, which is contrary to 17.2(b). Part 1 of the policy is difficult to achieve given the unique characteristics of the physiographic zone, and given the information available, is not likely to be achieved if the operation was run as proposed.

The key policies in the Regional Water Plan for the dairy shed effluent discharge activity is Policy 42, which seeks to avoid adverse effects on water quality by matching effluent management to the receiving environment risk, and Policy 31A which requires that discharges onto land are matched to risk. Risks to the receiving environment are not known with absolute certainty, therefore it is difficult to achieve consistency with Policies 31A and 42.

The proposed discharge of wintering barn effluent is contrary to Policy 4.2.4 of Regional Effluent Land Application Plan, which recommends Council adopt a precautionary approach to the discharge of effluent and sludge onto or into land where there are uncertainties regarding adverse effects. In this instance Overseer modelling supplied with the application shows that total nitrogen and phosphorus losses would increase under the proposal. Given the main contaminant pathways it is likely that losses to groundwater would increase, however it is not known whether increased nitrogen loading in shallow groundwater will affect potable water supplies.

Groundwater abstraction

The key policies relating to the water abstraction activity are Policies 21, 28, 29, 30 and 31 of the Regional Water Plan, and Policy 20 and 22 of the proposed plan. The abstraction would not result in allocation limits being met or exceeded, the proposed volume is reasonable for the proposed use, and the abstraction will be metered, which is consistent with these policies.

Conclusion

- The proposed groundwater abstraction activity is consistent with the policies of both the proposed and operative plans.
- The proposed effluent discharge is not consistent with all policies of the Regional Effluent Land Application Plan and the proposed Southland Water and Land Plan, and is contrary to some policies.
- The proposed additional dairy farming of cows is not consistent with all policies of the proposed Southland Water and Land Plan, and is contrary to some policies.

3.5 Relevant provisions of National Environmental Standards and other regulations (Section 104(1)(b)(i) and (ii))

National Environmental Standard for Sources of Human Drinking Water Regulations 2007

The purpose of the National Environmental Standard for Sources of Human Drinking Water is to reduce the risk of human drinking water sources becoming contaminated. It requires regional councils to ensure that effects of activities on drinking water sources are considered in decisions on resource consents.

Regulations 7 and 8 apply to an activity that has the potential to affect a registered drinking-water supply that provides no fewer than 501 people with drinking water for not less than 60 days each calendar year.

The activity is upstream of a registered drinking-water supply that provides water to more than 501 people, more than 60 days each year. The Invercargill City Council takes water from the Oreti River at Branxholme for municipal supply, approximately 27 kilometres downstream of the farm. At this distance effects of the dairy operation are likely to be negligible due to attenuation and dilution. If appropriate conditions can be developed, and provided the conditions are adhered to, then the discharge is not likely to introduce or increase the concentrations of determinands at the drinking water abstraction point that would cause a breach of the standards.

Regulation 12 applies to an activity that has the potential to affect a registered drinking-water supply that provides no fewer than 25 people with drinking water for not less than 60 days each calendar year. The proposed discharge and land use has the potential to adversely affect the Heddon Bush School registered drinking water supply approximately two kilometres downstream of the farm.

Regulation 12 requires that if the activity applied for may lead to an event (e.g. effluent spill), or as a consequence of an event (e.g. unusually heavy rainfall), have a significant adverse effect on the quality of the water at any abstraction point, then the consent authority must impose conditions on the consent. The regulation states that conditions must require the consent holder to notify the registered drinking water supply operator and the consent authority if such an event occurs.

3.6 Any other matters considered relevant and reasonably necessary to determine the application (Section 104(1)(c))

Te Tangi a Tauira is the Iwi Management Plan for Southland. The policies relevant to this application are:

Farm Effluent Management (Section 3.5.1)

- | | |
|------------------|--|
| <i>Policy 4</i> | <i>Sustain the life supporting capacity of soils for future generations.</i> |
| <i>Policy 7</i> | <i>Require soil risk assessments prior to consent for discharge to land, to assess the suitability and capability of the receiving environment. Effluent should be applied at rates that match the ability of land to absorb it.</i> |
| <i>Policy 8</i> | <i>Require best practice for land application of managing farm effluent.</i> |
| <i>Policy 11</i> | <i>Avoid any surface run-off/overland flow, ponding, or contamination of water resulting from the application of dairy shed effluent to pasture.</i> |
| <i>Policy 13</i> | <i>Appropriate buffer zones between discharge activities and waterways.</i> |
| <i>Policy 14</i> | <i>Buffer zones of at least 100 m between discharge activities and bores.</i> |
| <i>Policy 15</i> | <i>Spray drift from irrigation of effluent.</i> |

Water Quality (Section 3.5.13)

- | | |
|-----------------|---|
| <i>Policy 4</i> | <i>Avoid compromising water quality as a result of water abstractions</i> |
|-----------------|---|

Policy 5 *Avoid the use of water as a receiving environment for the discharge of contaminants. Generally, all discharge must be first to land*

Policy 6 *Avoid impacts on water as a result of inappropriate discharge to land activities*

Water Quantity - Abstractions (Section 3.5.14)

Policy 1 *Precautionary principle*

Policy 4 *In the Southland Plains region, prefer water takes from bores*

Policy 11 *Avoid excessive drawdown of aquifer levels as a result of groundwater abstractions, and to ensure that abstractions do not compromise the recovery of groundwater levels between irrigation seasons.*

Policy 16 *Encourage the installation of appropriate measuring devices on all water abstractions.*

Policy 17 *Advocate for durations not exceeding 25 years on resource consents related to water abstractions.*

Policy 18 *Review conditions.*

Comment

The proposed activity is generally consistent with these policies.

3.7 Section 105 matters relevant to discharge or coastal permits

Section 105 matters need to be considered as the application is for a discharge that would contravene Section 15. Under Section 105, the consent authority must have regard to:

- (a) the nature of the discharge and the sensitivity of the receiving environment to adverse effects;
- (b) the applicant’s reasons for the proposed choice; and
- (c) any possible alternative methods of discharge, including discharge into any other receiving environment.

The nature of the discharge is farm dairy effluent from the wash down of a dairy shed and a wintering barn. In 2000, a literature review¹⁰ established the mean chemical concentration in farm dairy effluent of: nitrogen (400 mg l⁻¹), phosphorus (70 mg l⁻¹), and potassium (370 mg l⁻¹). The applicant has tested effluent from the wintering barn and found the chemical concentration to be¹¹: nitrogen (2,900 g/m³), phosphorus (440 g/m³) and potassium (2,900 g/m³). Effluent also contains other nutrients, such as phosphorus, and gut organisms.

The receiving environment is sensitive to adverse effects. This is discussed further in Section 3.1 above, and in the technical evidence by Ewen Rodway and Nick Ward.

¹⁰ Longhurst, R. D., A. H. C. Roberts, and M. B. O’Connor, (2000). Farm dairy effluent: a review of published data on chemical and physical characteristics in New Zealand. *New Zealand Journal of Agricultural Research*, 43.1: 7-14.

¹¹ Aqualinc & Dairy Green Ltd, (2017). *Resource Consents Report: Assessment of Environmental Effects*, paragraph 7.14, page 39. (Application document).

The applicant’s reasons for the chosen effluent system are detailed in the application. In summary, the effluent irrigation methods (travelling irrigator, slurry tanker, and umbilical) have been chosen by the applicant as it is reliable and is existing practise. These irrigation methods have been chosen because of the flexibility to apply effluent to land as appropriate (given soil, weather and seasonal conditions), so that contaminant losses to water are at least minimised, if not avoided under most conditions. The system also allows for nutrients within the effluent to be utilised as a fertiliser.

Discharging farm dairy effluent to an alternative receiving environment (i.e. surface water or off-site) is considered unsustainable.

3.8 Section 107 restriction on grant of certain discharge permits

Section 107(1) states that a discharge permit for the discharge of a contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water, should not be approved if, after reasonable mixing, the contaminant is likely to give rise to any of the following effects in the receiving waters:

- (a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials:
- (b) any conspicuous change in the colour or visual clarity:
- (c) any emission of objectionable odour:
- (d) the rendering of fresh water unsuitable for consumption by farm animals:
- (e) any significant adverse effects on aquatic life.

Section 107(2) states that a consent authority may grant a discharge permit to do something that would otherwise contravene Section 15 or Section 15A that may allow any of the effects described in subsection (1) if it is satisfied –

- (a) that exceptional circumstances justify the granting of the permit; or
- (b) that the discharge is of a temporary nature; or
- (c) that the discharge is associated with necessary maintenance work—

and that it is consistent with the purpose of the Act to do so.

The majority of the adverse effects listed in this section have not been recorded during the compliance history of the applicant’s previous discharge permit. However, (g) of the listed effects has not been assessed by the applicant, so is not known.

3.9 Part 2 of the Resource Management Act 1991

All considerations are subject to Part 2 of the RMA, which sets out the purpose and principles that guide this legislation. This means that the matters in Part 2 prevail over other provisions of the RMA or provisions in planning instruments in the event of a conflict. Section 5 states the purpose of the RMA and Sections 6, 7 and 8 are principles intended to provide additional guidance as to the way in which the purpose is to be achieved.

In relation to the matters outlined in Section 5, I consider that this application is not consistent with the purpose and the principles of the Act, as set out in Section 5. This is the promotion of the sustainable management of natural and physical resources. The proposed activities are likely to have minor or more

than minor adverse effects on the ability of the receiving environment to meet the reasonably foreseeable needs of future generations, or on the life-supporting capacity of the land or any associated ecosystem.

All of the Part 6 matters have been covered within the various Council planning instruments, of which the application is generally consistent with. There is only one matter of national importance, as outlined in Section 6 of the Act that needs to be recognised and provided for in the context of this application. This is the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga. However, the area is not part of Statutory Acknowledgment Area under the Ngai Tahu Claims Settlement Act 1996 and there are no known areas of cultural importance within the site. Consideration has also been given, as per Section 104(1) to the relevant Iwi Management Plan for Southland. The following parts of Section 6 have been recognised and provided for, but do not have a direct relationship to the application because:

- the natural character of the costal environment, wetland, rivers and lakes and their margins will not be developed, used or subdivided as part of this application;
- there are no identified outstanding natural features and/or outstanding natural landscapes within the site;
- there are no known areas of significant indigenous vegetation and significant habitats of indigenous fauna;
- the application does not relate to public access to and along the coastal marines area, lake and/or rivers;
- there are no known sites of historic heritage within the farm area and as such they will not be affected by inappropriate use, subdivision or development;
- the site is not within a Statutory Acknowledgment Area and is not part of any customary rights.

In relation to the considerations under Section 7, it is considered that the activity would not result in the efficient use and development of resources, the maintenance and enhancement of the quality of the environment, or the protection of the habitat of trout. It is considered that, as with the various Council planning documents the application is generally not consistent with the aforementioned Section 7 matters.

With regard to Section 8 of the Act, the principles of the Treaty of Waitangi have been taken into account. This is through the consideration of Te Tangi (Iwi Management Plan) and the relevant policies in other planning documents.

Overall the application is considered to not meet all of the relevant provisions of Part 2 of the RMA as the proposal does not achieve the purpose of the RMA which is the sustainable management of natural and physical resources.

4. Recommendations

4.1 Whether to grant

The activities applied for have been considered together, and as such the highest consent test applies. The application is therefore considered as a **non-complying activity**. Under Section 104D the Council may grant consent if it is satisfied that either the adverse effects will be minor or the application will not be contrary to the objectives and policies of the relevant proposed and operative plans. If it grants the application, it may impose conditions under Section 108 of the RMA.

The level of adverse effects from the proposed discharge and land use activities on water quality is not well understood. Information provided in the application and further information provided, and technical

evidence by Ewen Rodway and Nick Ward, suggests that the level of adverse effects on water quality as a result of the proposed discharge and land use activities would not be less than minor, and may be more than minor. The potential effects of the proposed water abstraction is likely to be less than minor. In my view the application as a whole does not pass the ‘gateway test’ of Section 104D.

The key planning document is the proposed Southland Water and Land Plan. However, the operative Regional Water Plan and the Regional Effluent Land Application Plan have also been considered. Although full weight is not yet given to the proposed plan, it does have significant weight as it contains stronger provisions than the operative plans, and it implements the National Policy Statement for Freshwater Management, which is a higher order document.

The proposed activities are not consistent with all of the objectives and policies of the relevant regional planning documents, and are contrary to some objectives and policies. In particular, the application is contrary to the key policy of the proposed Southland Water and Land Plan, Policy 16. This policy requires that environmental effects from farming activities be minimised by strongly discouraging further intensification where the effects on water quality cannot be fully mitigated, or in areas where water quality is already degraded to the point of being over-allocated. The present application does not propose to fully mitigate the proposed intensification, and the groundwater zone could be considered over allocated in terms of water quality. Although catchment limits have not yet been set, the New Zealand Drinking Water Standard could be considered a limit as there is a potential effect on shallow groundwater in the vicinity which is used for potable water supply.

Nutrient budgets provided with the application propose an increase in losses of nitrogen and phosphorus under the proposed scenario. The application states that these losses should be considered in context with the modelling provided for the application for the Woldwide Two Limited operation, which was lodged separately to the present application and has been processed. This is discussed in Section 3.2.2.5 of this report, and in the technical evidence by Ewen Rodway.

As the management of the de Wolde’s companies is interconnected (as demonstrated in the nutrient budget modelling provided for Woldwide One Limited and Woldwide Two Limited), they may be able to provide more information regarding farm management in their evidence.

The applicant has described good management practices designed to minimise adverse effects arising from the operation, however, it is not clear when these will be operational, and there are some good management practices and common mitigation measures not being proposed. In my view the good management practices and mitigation measures described in the application will not fully mitigate the likely adverse effects of the discharge and land use activities, and therefore do not achieve Policy 16 of the proposed Southland Water Plan.

Good management practices and mitigation measures not proposed in the application include:

- low rate effluent application (less than 10 mm/hr) to achieve a “little and often” approach;
- adequate effluent storage (existing storage is currently smaller than the Massey pond calculator 90% storage recommendation). Although it is proposed to construct additional storage, it is not clear when this will be completed;
- on-site soil moisture and weather monitoring.

The water abstraction activity is considered to meet the relevant provisions of Part 2 of the RMA as the proposal achieves the purpose of the RMA. While the water permit could be granted separately, I recommend this is declined as it has been bundled with the discharge permit and land use consent

applications. The applicant is able to take stock drinking water as a permitted activity under the RMA and the relevant regional plans.

Subject to new or contrary evidence being presented at the hearing I recommend that this resource consent application is **declined**. The reasons for this recommendation are:

- in regards to Section 104(1)(a) of the RMA, the proposed activities are likely to bring about adverse effects on the receiving environment, particularly groundwater and surface water quality;
- in regards to Section 104(1)(ab) the measures proposed by the application for the purpose of ensuring positive effects on the environment do not offset or compensate for likely adverse effects on the environment resulting from the proposal;
- in regards to Section 104(1)(b) the activity is not consistent with, and is contrary to, key provisions of the proposed Southland Water and Land Plan;
- in regards to Section 104(7), a consent authority may decline an application on the grounds that it has inadequate information to determine the application;
- in regards to Section 104D(1)(a) the likely adverse effects of the discharge and land use activities on the environment are difficult to assess given the information provided, though may be minor or more than minor;
- in regards to Section 104D(1)(b) the proposed discharge and land use activities are contrary to both the relevant plan and relevant proposed plan. In my view, granting consent would impede progress towards achieving water quality objectives and would be contrary to policy.
-



Alexandra King
Senior Consents Officer

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AS COUNCIL POLICY UNLESS ADOPTED BY COUNCIL